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The Financial Crisis and Its Impacts on Global Agriculture

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Abstract

The financial crisis arose in the industrial countries, but has affected developing countries through higher interest rates, sharp changes in commodity prices, and reductions in investment, trade, migration and remittances. For most low-income countries, shocks that affect food prices or wage rates for unskilled workers seem likely to have the largest impact on poverty, with the declines in key food prices associated with the crisis helping to reduce poverty, while declining trade, investment, and remittance flows have had adverse impacts on the poor. Policies to address the crisis must include measures to deal with financial sector problems, the resulting reductions in aggregate demand, and the particular vulnerabilities of poor people. Given the complexity of the impacts from financial crises and commodity price shocks, there is a strong case for developing better social safety net policies that can offset the adverse impacts of a wide range of different shocks on poor people without creating costly market distortions.

This paper—a product of the Development Economics Vice-Presidency—is part of a larger effort in the department to understand the impact of the financial crisis on poor people. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at research@worldbank.org and wmartin1@worldbank.org.

The Financial Crisis and Its Impacts on Global Agriculture

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Keywords: financial crisis; agriculture; capital flows, commodity prices, remittances

**World Bank, Washington, D.C. The views expressed in this paper are those of the authors alone and should not be attributed to the World Bank.*

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1. Introduction

A specter is haunting the land—the specter of financial crisis and its aftermath. While the origins of this crisis lay in esoteric financial instruments, it propagated to the ends of the earth through channels such as increases in interest rates; a collapse in trade; reductions in remittances; and declines in investment. Its effects on many people have been harsh, and many more adverse impacts seem likely. The global public good of a well-operating financial system that allowed developing countries to invest their savings in secure financial assets broke down and remains in shaky condition.

It is clearly important that policy makers in developed, and particularly in developing, countries respond effectively to the problems created by the crisis. More than usual, however, it is important to understand and address the causes of the problem, rather than merely the symptoms, since ill-advised responses may be ineffective or even aggravate the situation. The channels of effects on developing countries and the poor are extremely diverse (Blanchard, 2008; Blanchard, Faruqee and Das, 2010; Caballero, Farhi and Gourinchas, 2008; Lin, 2008a; McKibbin and Stoeckel, 2009), including changes in capital flows, commodity prices, interest rates, remittances, risk premia, and trade opportunities. The channels of effects on rural people are even more complex, with linkages involving commodity prices, wage rates and employment likely to be particularly important.

How might we learn more about the causes and effects of the crisis? Clearly, some lessons can be drawn from the experience in earlier crises, but there are serious limits on our ability to learn from these because their causes were frequently profoundly different. Other lessons can perhaps be drawn from experience and knowledge of fundamental macroeconomic relationships, and information on the spreads between different types of interest rates. Finally, we may be able to learn something from quantitative economic analyses using models such as Warwick McKibbin's G-cubed model.

As always, forecasting is difficult—especially when it involves the future. Despite these hazards, we will try, in this short paper, to identify some of the key shocks, then to trace through

some of the key channels of effects. In light of our reading of this context, we will then turn to consider some recommendations for policies to deal with the crisis in a way that will return world agriculture to a better long-run path than the one that led us to the current dire situation.

2. Causes and Macroeconomic Impacts of the Crisis

The crisis emerged during 2007 in the most sophisticated centers of modern finance, frequently from the most sophisticated firms led by managers who understood—or appeared to understand—the new paradigms of modern finance. But the crisis did not begin or end here. On some readings (see, for example, Caballero *et al.*, 2008 and McKibbin and Stoeckel, 2009), important seeds of the current crisis were sown in the collapse of the US dotcom bubble in 2001, the trend of financial sector deregulation since the 1980s and changes in patterns of global savings and investment.

Deregulation of the financial sector in the advanced countries started in the early 1980s, and resulted in various complicated and widely used financial innovations that attempted to reduce individual investors' risks but in hindsight increased systemic risks. In the United States, concern about the potential contractionary effects of the collapse of the dotcom bubble resulted in a sharp loosening of monetary policy, with the US Federal/Funds rate being reduced by over 5 percentage points, from 6.5 percent to 1 percent between 2001 and 2004, before being gradually increased between 2004 and early 2006. The expansionary monetary policy averted a deeper recession by stimulating a boom, which soon turned into a bubble, in the housing market. Because of the large share of housing in household wealth, this bubble overcompensated for the loss of wealth in the stock market decline of 2000-02. Higher housing prices fueled a consumption boom, and continued expansionary monetary policy kept the US economy awash in liquidity.

Another factor contributing to demand in the industrial countries, and the demand for housing in particular, was innovations in financial markets, particularly the emergence of securitized lending as a result of deregulations starting in the 1980s. Securitization offered the promise of a new golden age of risk management by eliminating the mismatch between the long-term assets and short-term liabilities of traditional banks that had been the cause of innumerable financial

crises since the dawn of banking. Through securitization, borrowers seeking long-term liabilities could be matched with lenders seeking long-term assets.

Higher demand relative to income in key industrial countries contributed to the emergence of trade and current account deficits in those countries. These were matched by surpluses in key developing countries associated with high savings rates in those countries motivated by their experiences in the East Asian financial crisis.[1] The traditional pattern of capital flows from rich countries to poor countries was turned on its head, with capital flowing from poor to rich countries. The increase in savings in a number of developing countries contributed to a situation of low world interest rates (Bernanke, 2005; Obstfeld and Rogoff, 2009).

The recycling of aggregate savings from poor to rich countries during the early years of the 21st century was clearly troubling from a development perspective, but several features made it seem less of a concern. First, it was associated with rapid increases in private capital flows to developing countries--which grew by a factor of six between 2001 and 2007, to over $1 trillion dollars, before declining to a third of that level in 2009 (de la Torre *et al*, 2010). By 2009, almost all of this investment was in the form of equity, which involves much less risk to the host country than foreign-currency borrowing. The boom in private capital flows to developing countries was also associated with high growth rates in developing countries—with average developing country growth rates of over 5 percent per year between 2003 and 2007, as against 3.4 percent between 1980 and 2000 (Lin, 2008a, p5). Lending to the industrial countries seemed much less risky for developing countries than the sovereign borrowing by developing countries during the petrodollar recycling boom of the 1970s (Feldstein, 1999).

Unfortunately, weaknesses in the financial regulation in many industrial countries interacted with innovations such as securitized lending to create serious financial sector vulnerabilities. Lax standards were frequently applied by firms originating loans they intended to sell in the secondary market. Very high ratios of loan to value were permitted on the assumption that continuing increases in housing prices would quickly raise the value of the houses against which

[1] Following the Asian financial crisis, decision makers and policy makers in many developing countries concluded that it was dangerous to rely on capital inflows—and particularly borrowing from abroad in foreign currency—to finance an excess of investment over domestic savings. Savings rates rose sharply in many developing countries, not just the traditional high-saving oil exporters, but also countries relying on exports of manufactures.

the loans were secured. Many banks used optimistic models of the reductions in risk resulting from securitization to reduce the amount of capital they needed to hold, allowing them to further increase their lending.

When housing prices fell, from 2006, many mortgage-backed assets turned out to be highly vulnerable. Default rates on mortgages rose rapidly as many homeowners faced large declines in prices and, frequently, increases in their interest rates. The non-recourse nature of US housing loans provided an incentive for homeowners whose equity had become negative to default. The complexity and lack of transparency of many financial assets made it difficult to evaluate them, and resulted in the emergence of large risk premia on broad categories of assets. Conditions in financial markets deteriorated as institutions cut back on lending and sold assets—frequently at fire-sale prices—in order to preserve their capital (Blanchard, 2008).

Heightened perceptions of risk, combined with the liquidity problems of the financial sector, resulted in a sharp contraction of credit. The spread between interbank lending rates and US treasury bills jumped sharply. The heightened perception of risk seems to have extended progressively beyond the countries with troubled financial sectors, with substantial increases in the interest rates on loans to developing countries from late 2008 (Blanchard, 2008). Interest rate spreads on emerging market corporate bonds soared in late 2008 and the first half of 2009, and spreads on BB-rated corporate bonds remained 300 basis points above their pre-crisis levels in December 2009 (Dailami, 2009). Private financial flows to developing countries fell by more than 70 percent (de la Torre *et al* 2010, p. 9).

Some view the boom in commodity prices between 2007 and 2008 as a key element of the crisis (Caballero, Farhi and Gourinchas, 2008). On this reading, the collapse of the housing bubble in 2006 caused investors to reallocate their portfolios toward commodities, contributing to a doubling of the price of oil, and sharp increases in the prices of other commodities, between June 2007 and June 2008. One troubling feature of this explanation is that increases in inventories would have been needed for asset demand to explain increases in the prices of products like grains, and inventories of grains, and stocks of wheat and rice fell substantially in the marketing

year from June 2007 to May 2008 (USDA, 2009), although stocks of maize rose[2]. On the other hand, the near simultaneous increase in the prices of a wide range of commodities—including some, such as oil, with high income elasticities of demand and others such as rice with low income elasticities of demand—is suggestive of common macroeconomic causes. Increases in income in a number of major developing countries also appear to have contributed to higher energy prices (Ianchovichina, Ivanic and Martin, 2009).

It is widely agreed that a primary channel of transmission from the financial to the real sector has been through a decline in demand for investment goods and consumer durables (McKibbin and Stoeckel, 2009). Demand for investment goods is always much more volatile because a small change in the desired stock of these goods may translate into a large change in the demand for them.[3] Quantitative modeling by Dixon *et al* (2009) and by McKibbin and Stoeckel (2009) finds that the investment demand explanation is incomplete if the focus is on an individual country. With a standard macroeconomic model, an increase in the risk premium that reduces investment demand would be expected to result in a collapse in imports, but also a sharp devaluation and a sharp increase in exports from the directly-affected countries. This was certainly part of the response of the Asian economies to the Asian crisis (Martin and McKibbin, 1999) in which the current account balance of several countries moved from large deficit to large surplus very quickly.

In the current crisis, the imports and exports of the directly crisis-affected countries—and virtually all other countries with available data—have both declined together since trade began to slide sharply[4] in late 2008 (Freund 2009). A likely explanation for this phenomenon is that the crisis is truly worldwide, triggered by increases in the risk premia on private sector capital even in countries not directly experiencing financial crises. This explanation fits with the large increases in interest rates charged to developing countries from late 2008 (World Bank, 2009b;

[2] This explanation is more plausible in the case of oil, for which Caballero *et al* point out that inventories, may include stocks held in the ground, and not reported in inventory data.
[3] In basic macroeconomic theory, this feature of the demand for capital goods is frequently termed the accelerator principle.
[4] This decline was extremely rapid. From September 2007 to September 2008 the simple average of export growth rates for available countries was 18.5 percent. This corresponding rate to January 2009 was -34.5 percent, and remained around this level to June 2009, when some signs of a reduction in the rate of decline began to emerge, particularly from Asia.

McKibbin and Stoeckel, 2009). While the high interest rates pose problems for developing countries, the fact that the United States and other initial-deficit countries have not become large net exporters in the way that the Asian crisis countries did following the Asian financial crisis has reduced the pressure on other countries to sharply change their current account balances.

3. Impacts (and Potential Future Impacts) of the Crisis on Global Agriculture

Important recent impacts of the crisis have included: declines in commodity prices, particularly prices of investment goods. Another consequence has been declines in migration—both between regions and between countries—and a reduction in remittance flows. Increases in the cost of finance for production and trade have had unfavorable impacts—both directly and indirectly—on producers and consumers in poor countries, and have been associated with a sharp reduction in lending to developing countries (World Bank, 2009b). Declines in the demand for labor resulting from reductions in investment and in exports have put downward pressure on employment and wages for unskilled labor in many poor countries. Finally, increases in interest rates, particularly for trade credit (World Bank, 2009b), have raised the costs of production and trade.

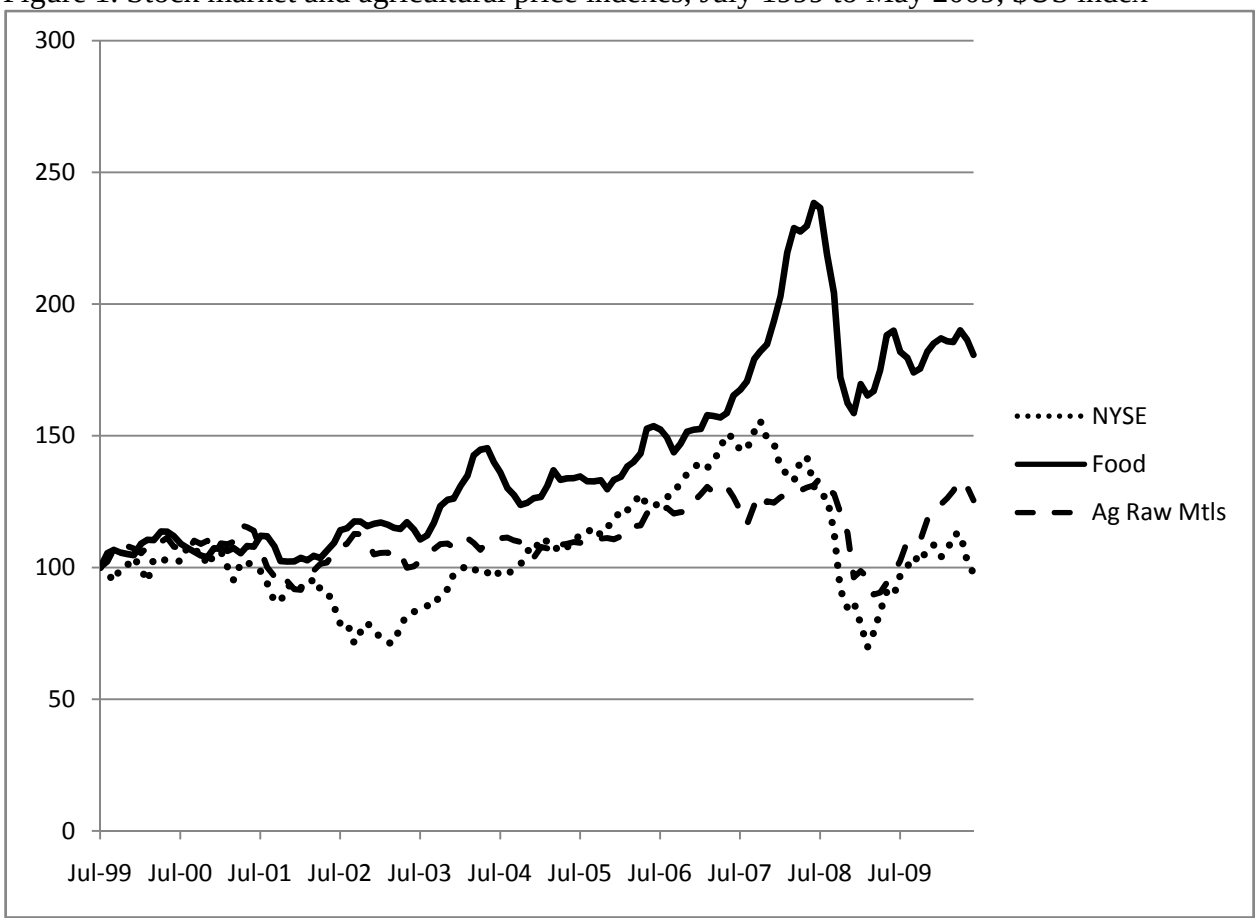
We must always be cautious in assessing the impacts of the crisis. As noted above, great uncertainty surrounds the precise nature of the shocks involved. Many of the policy responses to the shock—such as expansionary monetary policy—also appear to have their impacts with long and unpredictable lags. Under these circumstances, it is probably prudent to examine the vulnerability of poor people to different types of shocks, and the effectiveness of particular policies, rather than seeking to examine the impacts of shocks of the size observed to date. However, by examining the order of magnitude of particular shocks, and their "leverage" on poverty impacts, we may at least obtain some idea of which changes need to be monitored most carefully when assessing the implications of emerging changes.

The declines in commodity prices began from very high levels in 2008 for many commodities and have proceeded unevenly across commodities. The prices of some products such as rubber, oil and minerals that are linked to investment demand have generally fallen more than the prices

of pure consumption goods[5]. From experience in analyzing the consequences of the food crisis of 2008, we know that the effects of commodity prices on people in poor countries are very complex. It is tempting to conclude that, since farmers are poorer than urban residents in almost all poor countries, higher prices would therefore result in lower poverty. But declines in the prices of staple foods typically reduce poverty in poor countries because the poorest people spend such a large share of their incomes on these foods, and because many poor rural people, including farmers, are net buyers of these foods (Ivanic and Martin, 2008). Declines in the prices of some higher-income-elasticity foods such as dairy products or beef may, however, increase poverty by lowering the incomes of small producers who produce and sell these commodities but are unable to afford to buy many of these foods. Declines in the prices of cash crops such as cotton, coffee, cocoa and rubber are, however, more likely to increase poverty because farmers in poor countries are typically net sellers of these goods, and poor people spend only small shares of their incomes on them.

[5] Freund (2009) finds a similar relationship for trade. The declines in imports to the US and Japan of food and food products, and basic consumer items such as clothing, have been smaller than for other products in the US and Japan.

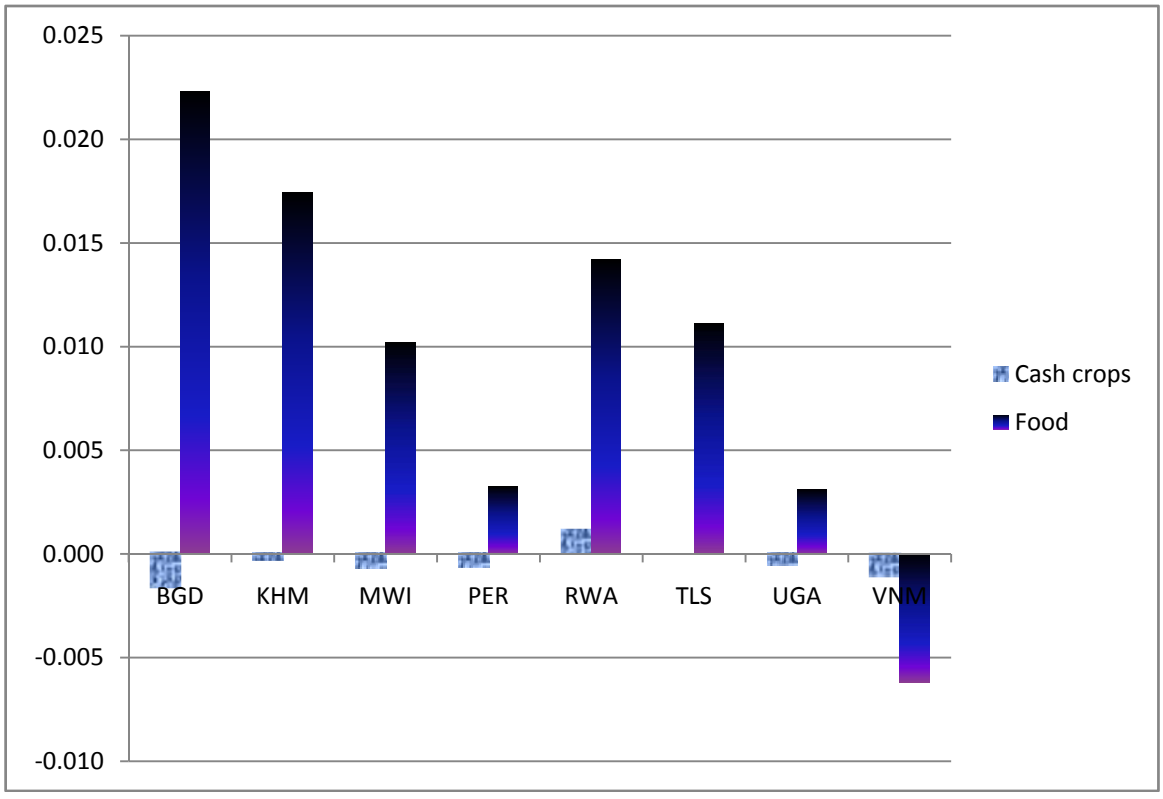
Figure 1. Stock market and agricultural price indexes, July 1999 to May 2009, $US index



One simple indicator of the relationship between prices of agricultural commodities and financial sector shocks is given by the relationship between agricultural prices and stock market indexes. Figure 1 presents the relationship between the New York Stock Exchange Composite index and the IMF composite indexes, in US$, for food and agricultural raw materials. Over much of the period considered, the three price indexes appear to have responded to some common determinants, with the price of raw materials being much more strongly correlated with the stock market index than is the food price. Two sections of the graph are of particular interest. The first is the period after the stock market decline from late 2001, and the second the rise, decline and subsequent partial recovery in all three prices after 2005. In the first period, it appears that the decline in stock market prices was associated with a rise in agricultural commodity prices. In the second period, the three series moved in similar directions, although the turning points in the food market were slightly different, and food prices rose considerably more than the other series in 2007-8, and remained higher afterwards.

As noted above, there are good reasons to expect differences in the impacts of food prices and raw material prices on poverty in developing countries. Figure 2 shows the impact of a 10 percent increase in the price of food and the price of non-food cash crops on poverty in eight low-income countries (Bangladesh-BGD; Cambodia-KHM; Malawi-MWI; Peru-PER; Rwanda-RWA; East Timor-TLS; Uganda-UGA; and Vietnam–VNM). This figure suggests that increases in the price of food have relatively large positive impacts on poverty rates in the short run for seven of the eight countries. In the eighth country, Vietnam, poverty declines because of a large number of relatively poor farmers who are net sellers of food. By contrast, increases in the prices of non-food agricultural goods have a negative impact on poverty in seven of the eight countries. However, these negative impacts are very small relative to the increases resulting from changes in the price of staple foods.

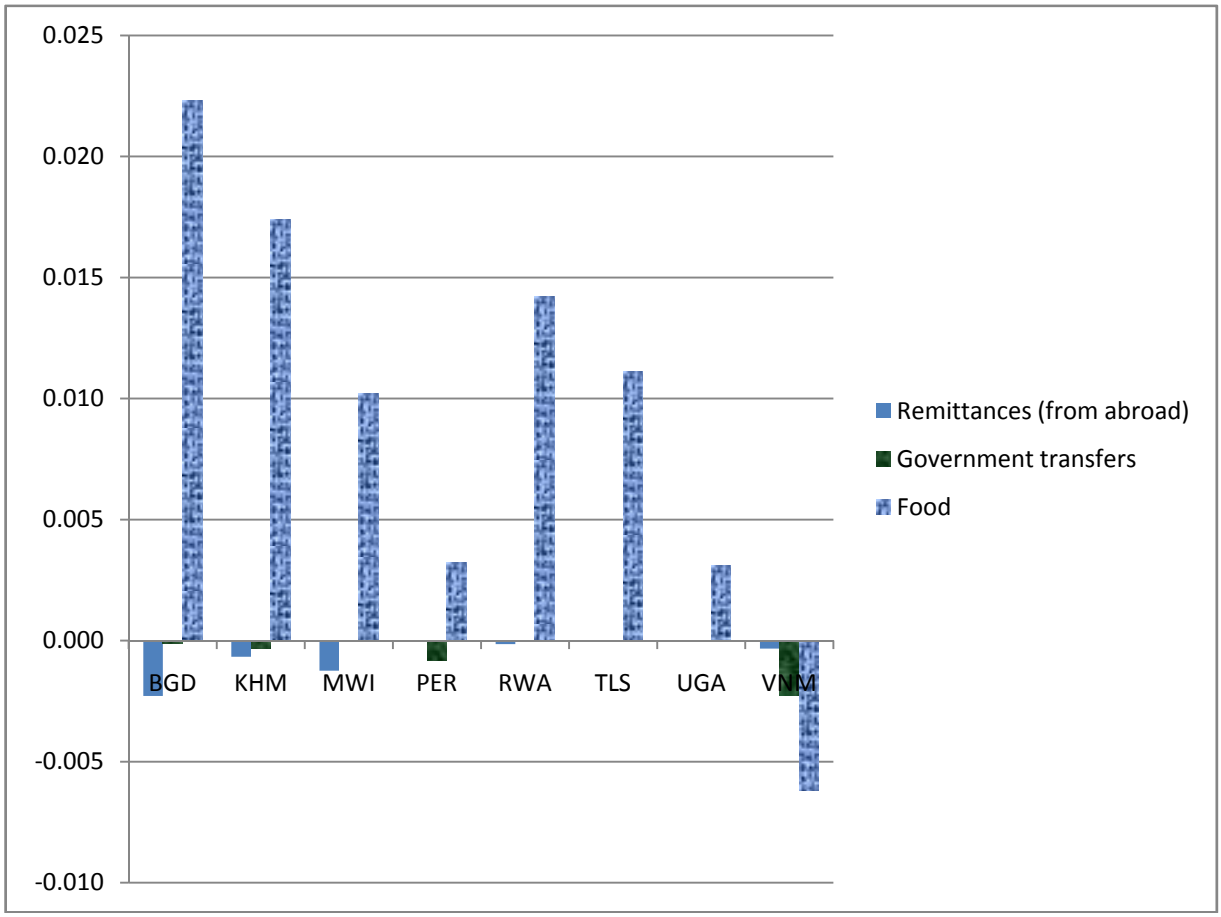
Figure 2: Impacts of changes in agricultural prices on poverty,



International movement of workers appears to have slowed very rapidly both in response to falls in demand for labor in key areas such as the Gulf countries, and to tightening of immigration

policies. This reduced the earnings of out-migrants, and remittance flows to people remaining at home, with remittance flows to developing countries falling by 6 percent in 2009 (World Bank 2010a). Reductions in remittances have effects on households, directly by reducing their purchasing power, and indirectly by reducing the demand for labor in nontraded sectors such as construction of housing, that are heavily influenced by spending from remittances. Reductions in government revenues are likely to exceed the average decline of 1.8 percentage points in GDP in developing countries other than China and India (World Bank 2010b). Since government revenues frequently change more than national income in response to changes in income, reductions in transfers of a similar magnitude would likely occur absent conscious reallocation of resources to transfers by developing country governments. Figure 3 presents estimates of the impacts on poverty of 10-percent increases in remittances, government transfers, and food prices.

Figure 3: Impacts of 10 % increases in prices of food, remittances and transfers on poverty

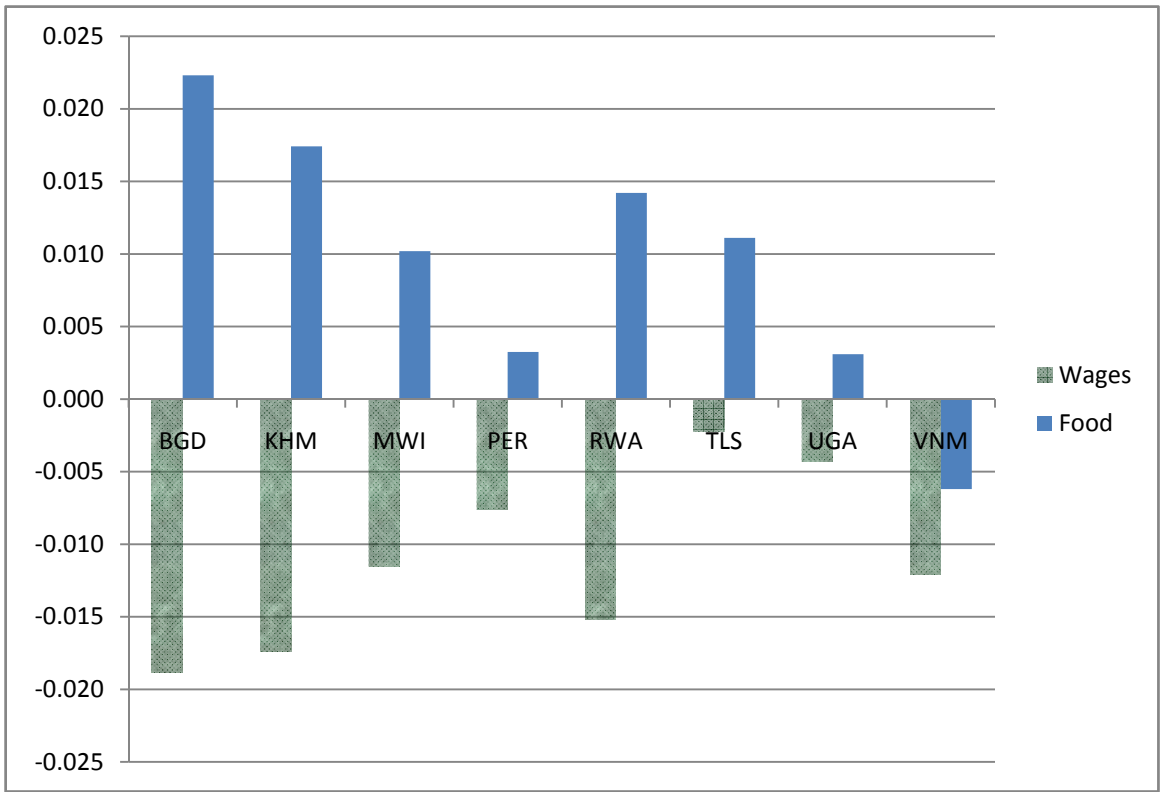


An important feature of Figure 3 is that the impacts of 10-percent increases in remittances and government transfers on poverty appear to be much smaller than those for food prices. Increases in remittances result in noticeable poverty reductions in Bangladesh, Cambodia and Malawi, while government transfers are more important than remittances in Vietnam and Peru. However, the results in the figure and crude estimates of the likely extent of shocks to these variables suggest that the poverty impacts of changes in food prices are likely to require much more attention than changes in either remittances or transfers.

The combination of declines in domestic demand associated with the crisis, declines in export demand, and declines in demand associated with lower remittance flows put downward pressure on wage rates for unskilled labor. The leverage on the household incomes of the poor associated with such shocks can be estimated using national models and matching the estimated changes in

wage rates for unskilled workers to households' sales of unskilled labor outside their family enterprises such as farms. Figure 4 shows the effects of a 10-percent increase in wage rates for unskilled workers together with a 10-percent increase in food prices. The results in this figure highlight the importance of changes in unskilled wage rates for poverty—a result that holds for both rural and urban households—even though this unskilled wage rate applies only to sales of unskilled labor outside the family farm, and not to earnings of unskilled workers on family farms. While the impact of a change in the price of food on unskilled wage rates is much less than one (Ivanic and Martin, 2008), the current crisis involves many changes, such as increases in interest rates, that can be expected to reduce the demand for unskilled labor, and hence real wage rates.

Figure 4: Impacts of changes in unskilled wage rates on poverty.



Estimating the increases in production and trade costs associated with the financial crisis is difficult, particularly since the rise in the effective cost of capital associated with credit rationing as banks pull back from lending to particular activities is unobservable. It seems clear that the direct impacts on production costs in developing country agriculture are likely to be small, since

subsistence farmers use relatively little working capital. Impacts on trade in agricultural products seem likely to be larger given the higher working capital requirements of trade and the large apparent increases in interest costs on trade finance (World Bank, 2009b, p50). Some, crude estimates of the implications of such cost increases may be obtained by making guesstimates of the amount of working capital involved in production and trade and estimating the impacts on developing country agriculture.

Some very tentative simulation analysis by Ivanic and Martin (2010) suggests that the effects of the crisis on poverty may have been smaller than was widely anticipated—primarily because of the declines in commodity—and particularly food—prices associated with it. A recent *ex post* study of the crisis by OXFAM (Green, King, Miller-Dawkins 2010) also points to the extraordinary resilience of poor people in adjusting to the many shocks associated with the crisis.

4. Potential Policy Responses

The specific interventions that are most appropriate will depend on the stage of development of the economy. However, it is clear that key responses to the crisis must involve: (i) interventions to respond directly to the financial sector problems; (ii) interventions to deal with the macroeconomic aspects of the crisis; and (iii) interventions that deal with the particular problems of the poor and vulnerable.

Dealing with Financial Sector Problems

The response to the crisis must begin by dealing with the financial problems of the financial sector that gave rise to the crisis. Unless these problems are resolved, no amount of fiscal or monetary stimulus can satisfactorily deal with the problem. Most of the need for reform of the financial sector identified by the crisis appears to be in the industrial countries—a situation quite different from the financial and debt crises of the 1980s and 1990s, when the problems highlighted were in developing countries. Major adjustments in financial sector policy are clearly needed, with improvements in the regulatory framework, and reduction in incentives to engage in risky practices. Suggestions for reform have been discussed at length elsewhere (see, for example, Demirgüç-Kunt and Servén, 2010) and we will not dwell on these issues in this paper.

Macroeconomic Policy Adjustments

Macroeconomic policy responses to the crisis involve monetary and fiscal policy stimulus to offset its contractionary effects, and dealing with the macroeconomic imbalances that required large—and ultimately unsustainable—current account deficits in key countries.

Policy responses to the crisis have included vigorous fiscal stimulus in many countries, frequently in conjunction with aggressive easing of monetary policy; direct action to shore up the balance sheets of banks and other financial institutions that might otherwise have ceased lending; government support to or investment in larger corporations threatened with collapse; and resort to protectionism. The future evolution of the crisis appears likely to depend heavily upon the effectiveness of these policy interventions, and the extent to which stimulus can be withdrawn without triggering further downturns. The risks of accumulating so much government debt that further stimulus becomes impossible, and the temptation to reduce the debt burden by inflation, should also be borne in mind.

The stimulus provided to date has clearly been important. Had intervention not occurred in a range of countries on the scale that we have seen, a prolonged period of deflation might well have ensued. Fiscal and monetary stimulus was—in both industrial and developing countries-- an important part of the response to the crisis. Fiscal stimulus in developing countries was particularly important because many of the highest-return projects available for implementation were in developing countries (Lin, 2009). One key concern is that the stimulus in both developed and developing countries should be sufficient to overcome the deficiency of aggregate demand, and not be withdrawn too soon (Guha, 2009).

A concern for policy makers in individual countries is that part of any given stimulus will spill over to other countries, benefitting them instead of the country providing the stimulus. For this reason, stimulus policies need to be coordinated across countries so that each country benefits from the stimulus of others, as well as from their own. Analysis shows that, when countries seek to retain all of the benefit of their own fiscal stimulus, the benefit of the stimulus is reduced (Medina and Garcia, 2009), even to the country providing the stimulus (McKibbin and Stoeckel, 2009).

A key challenge for macroeconomic policy will lie in rebalancing away from the deficits in key industrial countries—and the surpluses in other countries—that contributed to the emergence of the current crisis. This process has already begun, with the US current account deficit declining sharply as a share of GDP between 2005 and 2008, and global imbalances also declining (IMF, 2009).

Dealing with the Problems of the Poor and the Vulnerable

Policies to deal with the problems of the poor and vulnerable identified during this crisis include longer-term policies designed to raise income levels and hence to reduce the vulnerability of the people who are currently poor to all shocks, and particularly to shocks involving changes in the price of food. They also include policies that deal with the volatility associated with the crisis.

Raising the incomes of the poor is the most effective long-term mechanism for reducing their vulnerability—and especially the vulnerability associated with higher prices of staple foods. This is a huge challenge, and involves all fields of economic policy. For this, it appears that improving the technology of agricultural production is likely to be particularly important since it appears that investments in agricultural research can have particularly high rates of return. In his survey of the massive literature on the returns to agricultural research, Evenson (2001) reports an average internal rate of return of 49 percent on investments in applied agricultural research. Assuming a uniform stream of benefits and, following Evenson, a 5 percent discount rate, this implies a marginal return per dollar invested of approximately ten dollars. Clearly, the rates of return on funds invested in research appear to be extremely high, which alone makes a strong case for higher investment in agricultural research.

Some are pessimistic about the potential for agricultural productivity growth in developing countries. However, Martin and Mitra's (2004) study of productivity growth in agriculture showed that productivity growth in agriculture in developing countries was higher than in the non-agricultural sector during the period 1967-1992, which includes the peak period of innovation for green-revolution technologies. If such high rates of growth were feasible in this earlier period, it seems likely that high rates of growth in agricultural productivity would again

be feasible given the apparent international support for increased investment in agriculture (Financial Times, 2009), and the commitment of the World Bank (2009a) and other agencies to increased support.

The case for investing in improved agricultural technology is further strengthened by its potentially strongly favorable impacts on poverty reduction. Ivanic and Martin (2009) find that increasing food output by improving the technology available to all farmers can substantially reduce poverty. This felicitous result follows from the fact that improvements in the technology available to poor farmers increase their output in line with their initial production, rather than merely their net sales. Global improvements in technology also lower the price paid by consumers for food, a particularly important effect given the fact that the poorest households spend roughly three-quarters of their income on food. If, by contrast, countries attempt to meet the expected increase in the demand for food by increasing protection, Ivanic and Martin (2009) find that the likely consequences are reductions in average incomes and increases in poverty.

A strong case can also be made for investing in rural infrastructure. Improvements in rural infrastructure raise the prices received for output from a region, and lower the cost of consumption goods brought in, and can be very effective in lowering poverty. Investments in infrastructure frequently have high benefit/cost ratios. Khandker, Barnes and Samad (2009) conclude that rural electrification in Bangladesh has a benefit-cost ratio of 2.3. Further, investments in infrastructure are highly complementary with investments in research and development. In fact, many innovations resulting from research, such as improved crop varieties, require investments in infrastructure such as irrigation if they are to succeed.

In the long run, raising the incomes of the rural poor also involves ensuing that they have employment opportunities outside the agricultural sector in activities consistent with the country's comparative advantage. Hertel and Zhai (2006) emphasize the importance of rural education both in increasing lifetime incomes, and in facilitating mobility into non-agricultural employment.

Policies for dealing with the volatility associated with financial crisis can be divided into policies that attempt to reduce the shocks to which households are exposed, and policies that help people deal with them. Given the importance of shocks to the prices of staple foods for poverty, attempts to stabilize these prices have been an important focus of policy concern. While there are considerable differences between countries and commodities in the impacts of changes in food prices on poverty, the increases in poverty appear to be larger and more frequent than reductions (Ivanic and Martin, 2008). The early stages of the current crisis were associated with sharp increases in key commodity prices, which have since been partially, but not completely, reversed.

Because large fluctuations in commodity prices can be extremely disruptive, it is tempting for governments to attempt to stabilize these prices, either by insulating domestic prices from world prices, or by attempting to stabilize world prices. The use of variable protection rates to insulate domestic prices from fluctuations in world prices is a popular approach to this problem. Unfortunately, however, responses such as the use of export restrictions by exporters; and temporary reductions in import tariffs in importing countries, and attempts to build stocks during periods of crisis can, as we saw in 2008, cause world prices to rise very substantially. The use of export subsidies and higher import tariffs in periods of low prices creates similar problems, further depressing world prices.

If all countries, or at least countries covering a large share of world production and consumption, use policies of this type, then the destabilizing impact of these interventions on world prices will be so large that the attempt to stabilize domestic prices will be ineffective. Collective action in the form of an agreement—perhaps at the World Trade Organization (WTO)— to reduce the extent that countries insulate their domestic market prices from changes in world prices could yield a better outcome globally than attempts by individual countries to stabilize their own domestic prices through beggar-thy-neighbor policies that shift the burden of volatility onto other countries. Unfortunately, an agreement along these lines in the WTO seems far away, because many countries are unwilling to relinquish their right to intervene in these important markets.

Many attempts have been made to stabilize world prices by holding stocks of key commodities. As noted by Wright (2009), the key to avoiding high prices is to ensure that sufficient stocks are available to avoid stock-out situations where demand cannot be met from stocks. While price band schemes that avoid peaks and troughs are appealing in principle, both theory and practical experience suggest that schemes of this type are likely to fail.

In light of these problems, a number of recent proposals (eg von Braun and Torero, 2009; von Braun, Lin and Torero, 2009; Lin, 2008b) focus only on the problems associated with high food prices. These proposals include a small emergency stock to help deal with the specific problems of the poor. The proposal by von Braun, Lin and Torero (2009) also includes an internationally coordinated grain reserve. Another element is a "virtual reserve" under which the administering body would sell forward contracts in order to set a future price below the current spot price, hence reducing the incentive for speculative holding of grain in times of shortage.

A key challenge for the administrators of such a scheme would be to manage the risk of speculative attack on the ceiling price. Once a ceiling price for a particular commodity had been set and come under pressure, speculators might see themselves facing a one-way bet. If the ceiling held, people buying futures contracts at the ceiling price would be unlikely to lose, and could make potentially very large gains if the authority were forced to raise the ceiling. Whether or not the possibility of releasing the internationally coordinated grain reserves to maintain the price below the ceiling will deter speculative attack deserves further study.

At the country level, policies that attempt to insulate domestic prices from changes in world prices, or to insulate all consumers and producers from the effects of real exchange rate changes, may generate substantial costs relative to policies that focus on the needs of vulnerable groups using safety-nets.

During the course of the crisis, households have been, and will be, exposed to a wide range of different shocks. Many policies—including food aid programs, school feeding and food ration programs—have been put into effect since 2008 to deal specifically with the important shocks resulting from the food price spike. Importantly, many of the safety-net programs that have been

developed or enhanced to deal with these shocks are able to deal with a broader range of shocks than those resulting from the food price crisis (World Bank, 2009c). Given the unpredictable impacts of the shocks resulting from the financial crisis, there appears to be a strong case—as suggested by Kanbur (2009)—for developing more comprehensive safety-net programs to deal with shocks from a wide range of sources, rather than programs designed to deal with specific shocks.

5. Conclusions

The current financial crisis emerged from an unusual world in which the richest countries had become the largest consumers of savings generated in much poorer countries. This consumption was financed in part by financial innovations that extended credit to many previously unable to borrow, and which appeared to manage the associated credit risk through the magic of securitization. Serious problems first became evident in 2007, as house prices began to decline. These problems were spread more broadly through the financial sector during 2007 and 2008, and much more widely from late 2008, when confidence diminished, interest rates paid by developing countries rose sharply, and world trade entered a precipitous decline. A sharp increase in commodity prices, and especially food prices, was a key element of the preliminary phase of the crisis—although whether this rise was caused by portfolio managers seeking to diversify away from housing and toward commodities remains a subject of debate.

The impact of the crisis on poor people depends heavily upon its impact on the prices they face, and the transfers they receive. Food prices appear to be both subject to particularly sharp swings, and to have disproportionately large impacts on poverty because of the importance of spending on food by the poor. Changes in wage rates for unskilled labor sold outside the family firm also have relatively large impacts on the poverty rate. A 10 percent change in remittance flows or in government transfers has much smaller impacts in most countries, although the impact of changes in remittances is relatively large in Bangladesh and a change in government transfer payments has a relatively large impact in Vietnam.

Three broad types of policy response need to be considered: (i) resolution of financial sector problems; (ii) dealing with macroeconomic impacts; and (iii) dealing with the specific problems

of the poor and vulnerable. Much has been written about the need to resolve the financial sector problems in the industrial countries and much of this discussion has relevance for reform in developing countries (Demirgüç-Kunt and Servén 2010). Macroeconomic responses to the contraction in demand are important and need to be conducted in a consistent fashion if all countries are to benefit and if the temptation to engage in trade protectionism is not too attractive.

Perhaps the most important responses for developing countries are those focused on the needs of the poorest. In the long run, a key goal is to raise the incomes of the poorest, since this will reduce the share of their expenditures on food, and their vulnerability to a wide range of shocks. Given the importance of shocks from the price of food for the poor, policies need to address this source of vulnerability. Approaches that focus on reducing price spikes have received a great deal of attention, but these policies—which reduce the volatility of prices for all households—raise many difficult challenges.

In the longer term, the most promising approach to dealing with the vulnerability of poor households involves addressing very specifically the needs of poor and vulnerable households. A number of programs focused on the specific challenges associated with high and variable food prices have been developed in recent years. Given the wide range of shocks and potential shocks associated with the crisis, there seems to be a strong case for development of more general social safety net programs that can deal with the adverse consequences of a wider range of shocks.

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